

Long Island Botanical Society

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Norman Taylor and the Vegetation of Montauk

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Long Island Botanical Society

Introduction

In 1923 Norman Taylor wrote a monograph entitled *The vegetation of Long Island. Part I. The vegetation of Montauk: a study of grassland and forest, and Part II. Flora of Montauk*. It was published by the Brooklyn Botanic Garden and presented the results of several years of in-the-field research studying the flora of the Montauk peninsula, including the distribution of plants, their relative abundance and the climatic and geologic conditions in which they grew. A few years ago it was suggested that we revisit Norman Taylor's work and ascertain

the state of Montauk's flora 90 years after Taylor's publication. Larry had studied the Montauk vegetation intensively in the early years of his work as environmental planner, and then as natural resources and environmental protection director for the Town of East Hampton. Victoria has been studying the Montauk flora since 1990 when her family settled there, but progressively and especially so over the last several years. Despite the extensive changes that have taken place since Norman Taylor's study, the co-authors have reconnoitered all of Montauk's different habitats, following in the author's footsteps as much as possible.

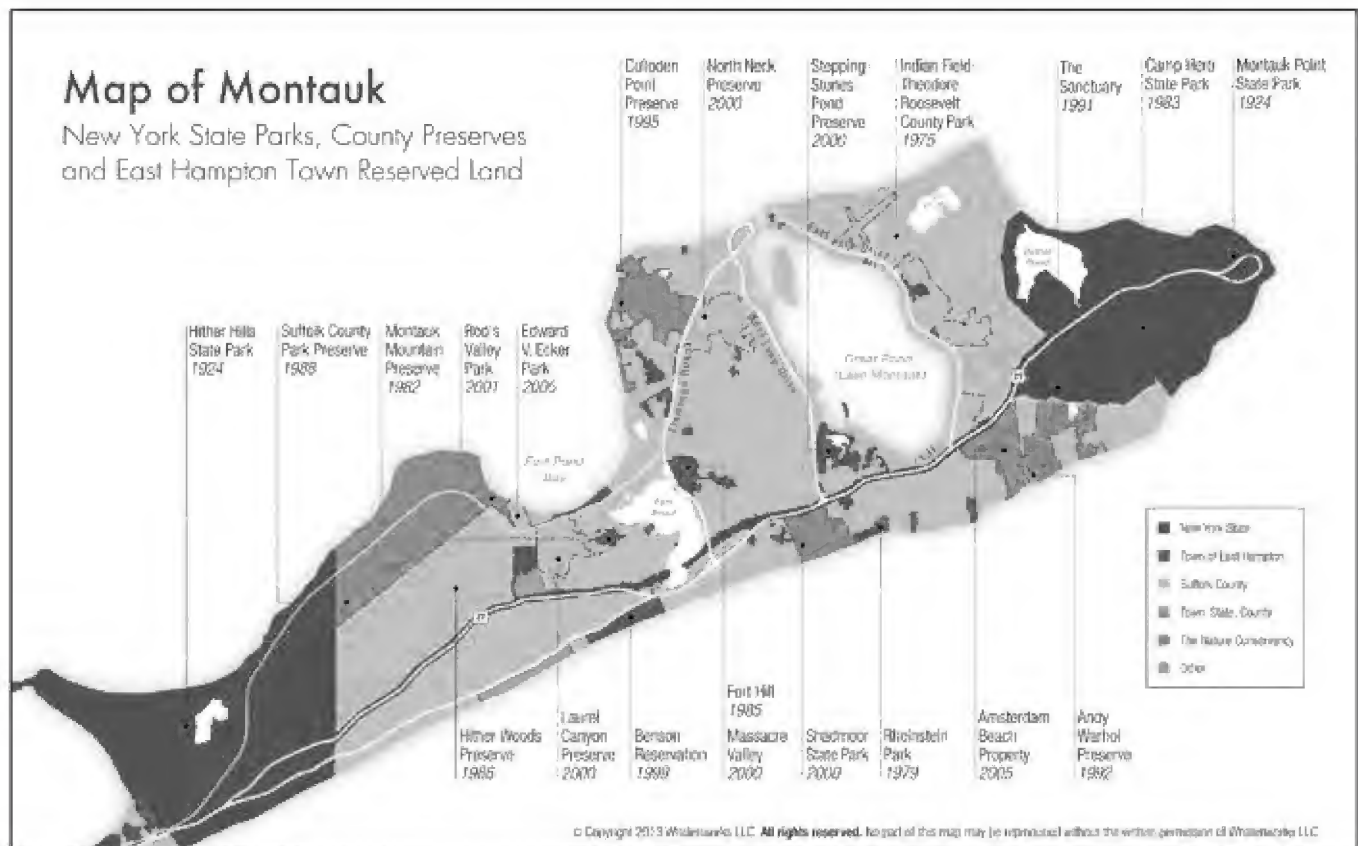


Figure 1. Map of Montauk by Whalenworks LLC. Used by permission.

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Long Island Botanical Society

Founded: 1986 • Incorporated: 1989

The Long Island Botanical Society is dedicated to the promotion of field botany and a greater understanding of the plants that grow wild on Long Island, New York.

Visit the Society's Web site
www.libotanical.org

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Society News

[Ed. Note: The petition below speaks for itself. It is an online petition concerning the elimination of the Science Department of the Brooklyn Botanic Garden.]

LIBS members have already felt the impact of this closure: Long Island herbarium specimens recently transferred to the BBG Herbarium (BKL) from Stony Brook University are no longer accessible, and botanists Steve Glenn, Kerry Barringer and Paul Harwood are no longer conducting research on the Long Island flora. One LIBS member had to retrieve her collection of dissertation study specimens before their identification could be verified by staff botanists. The authors of our cover story will not have access to Norman Taylor's herbarium specimens, and some important questions in their work will remain unresolved. The LIBS Atlas will not include the most recent data. The list goes on.

As this newsletter goes to press, the Brooklyn Botanic Garden website states that "The BBG research program is currently on hiatus and access to the institution's herbarium is limited. A collaboration offered by the New York Botanical Garden will support BBG's herbarium while BBG makes plans for a new building to house its science programs and collections." The petition has received over 1,600 signatures and has attracted press coverage by the New York Daily News.

If you have not already done so, you can sign the petition at <http://chn.ge/18tcvVr> or <https://www.change.org/petitions/board-of-directors-brooklyn-botanic-garden-restore-science-to-brooklyn-botanic-garden> .]

To:

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Christine Quinn, Speaker, New York City Council
Joseph Martens, Commissioner, New York State DEC
Marty Markowitz, Brooklyn Borough President
Alton Murray, Arts & Culture/Env. Programs, Con Edison Partnerships
Antonia Yuille, Director, Con Edison Public Affairs, Brooklyn
John C. Liu, Comptroller, City of New York

Petition by Chris Kreussling, Flatbush, Brooklyn, NY

On Wednesday, August 21, 2013, Vice Presidents of the Brooklyn Botanic Garden (BBG) notified four staff that they had been fired. The position of Director of Greenbridge, BBG's community outreach program, was eliminated. Also eliminated were the last three research and science positions at BBG: Curator of the Herbarium, Herbarium Supervisor, and Manager of the New York Metropolitan Flora Project (NYMF). One Herbarium Technician and one part-time Herbarium Assistant, neither of which is a research position, were transferred to the Horticulture Department.

This latest round of layoffs eliminates the last vestige of support for research and science at BBG. Claims from BBG's administration that this merely presages the "re-envisioning" of their science programs defy credibility. The current crisis is not a singular event. It's the just the most-recent expression of a pattern of decisions by which BBG has eroded its science staff, programs and activities to nothing, in violation of its mission.

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(Society News cont'd.)

The current administration was established in 2005. At every opportunity they have placed science and research last in priority. Science staff and the programs themselves have been demoted in BBG's corporate hierarchy. No new science positions have been created. No one has been hired to fill science positions as they've been vacated.

Within its first two years, BBG's current administration transferred the Publications group from Science to Marketing. They demoted the Vice President of Science to Director of Science; even that diminished position no longer exists. In 2005, BBG had eight science Ph.D.s on staff. Today it has none. The sole researcher BBG has claimed to have on staff is not paid by BBG, and no longer works there.

During the same period, BBG has created, expanded or maintained several senior and upper management positions in the areas of fundraising, development, communications, and marketing. BBG has completed three major infrastructure projects: the new Edibles Garden, the Visitor Center, and the Native Flora Garden expansion. A fourth project is already underway to overhaul the Children's Garden area at the southern end of the Garden.

BBG has raised tens of millions of dollars of funding for these projects. But nothing for science.

Impacts

Brooklyn Botanic Garden's Herbarium (BKL) is an important resource to plant scientists worldwide. BKL contains many important historical plant collections, including the Whitney South Seas Expedition, the Mulford Expedition to the upper Amazon, the Camillo Schneider Cultivated Plants Collection, the Hall and Harbor Western US Expedition, and the Nicholas Pike Mauritian Ferns, among others.

Closer to home, BKL includes records of local flora dating back to the 1700s, a history of native and invasive plants critical to conservation efforts, plant identification, and understanding of the natural history – and future – of the region. Recent

collections from the New York Metropolitan Flora Project, the New Jersey watersheds and preserves, the New Jersey Pine Barrens, the New Jersey Moss Flora as well as the Catskill Mountains have added over 50,000 specimens.

Many government agencies and scientific institutions depend on the data collected by BBG scientists, including the New York State Department of Environmental Conservation (NYSDEC), the New York City Department of Environmental Protection (NYCDEP), the Greenbelt Native Plant Center (GNPC), the New York Flora Association (NYFA), the New York Natural Heritage Program (NYNHP), the Long Island Native Plant Initiative (LINPI), the New Jersey Natural Heritage Program (NJNHP), the New Jersey Department of Environmental Conservation (NJDEP), and others. BBG scientists, their collections, and their collaborations with all these agencies and organizations are the basis for ongoing and current understanding of the complex interactions of climate change, invasive species, habitat loss, widespread extirpation and extinction, and their impacts on the environment and ecology of the tri-state region.

Elimination of BBG's science staff, program, and activities is a huge setback for all of these efforts.

We call upon the Board of Directors of the Brooklyn Botanic Garden to:

- Reinstate Brooklyn Botanic Garden's field work, herbarium and library access, and the scientists needed to support these programs and services.
- Restore science as a priority, as required by the Brooklyn Botanic Garden's mission: "Engaging in research in plant sciences to expand human knowledge of plants, and disseminating the results to science professionals and the general public."
- Include Brooklyn, its neighborhoods, and scientific communities – the public for which Brooklyn Botanic Garden was founded, and is funded, to serve – in all decisions affecting its research and education programs and activities.



(Norman Taylor & Montauk cont. from cover)

History

Prior to European settlement on Long Island, Montauk was in the hands of the Montaukets, one of the many Delaware-Lenape sub-branches of the East Coast Algonkian Indians occupying Long Island. The Montauk natives were essentially hunter-gatherers, but did raise some crops; ubiquitous stocks of marine shellfish and finfish served as their primary source of protein, but white-tailed deer, wild turkeys, heath hens, cottontail rabbits and various species of ducks populated the area and were also a regular part of their everyday diet. The Montaukets used certain plants, e.g., sweet grass (*Hierochloa*), and other local plants for weaving baskets, making fish traps and fashioning garments and house trappings, while plants such as cranberries, blueberries, ground nuts, hickories, oaks, and beeches provided them with sugars and starches. The

Montaukets were few and there was ample food to be gleaned from the wild for all.

Lion Gardiner negotiated the sale of Montauk to the European settlers after which the "Proprietors" of East Hampton served as agents for the Town Trustees which was the sole governing body for East Hampton Town's first 260 years. Later the Town Council became the chief governing body and the Trustees were reduced to caring for the water bodies and public lands. In 1885 the Proprietors sold all of Montauk, beginning at its southwest boundary, the east end of the isthmus of Napeague, to Arthur Benson.

Before the sale to Benson, the Montaukets were subject to certain East Hampton ordinances that regulated the use of fire, the keeping of wolves as pets and working dogs, the clearing

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of timber for building, making fences, burning and farming and harvesting game, seafood and some vegetable foods (e.g., cranberries). Benson upon becoming the sole landowner began a Montauket relocation program. Some individuals were sent all the way to the Midwest, many went to East Hampton in a special area north of what is now East Hampton Village, and a few stayed on in Montauk. Today, the few surviving Montaukets who live on the South Fork of Long Island and elsewhere are working to gain tribal status.

While the Trustees managed and regulated what is now the Hamlet of Montauk, Montauk's long-standing Hither Woods and other wooded areas were cut over for timber and firewood. The open lands created by such timbering were dedicated for grazing use by cattle, sheep, and goats. Such livestock were paraded to Montauk from the East Hampton mainland in the spring and paraded back to their quarters in the fall. These herbivores kept much of Hither Woods treeless for more than 250 years, notwithstanding Benson's ownership, until grazing was finally curtailed during the Great Depression. After World War II, grazing resumed on a much smaller scale on the Downs east of Lake Montauk by the Dickerson family. Rodeos were even held for a time on those lands, now part of the county park.

Also in the 1920s when the downtown high-rise was constructed on the southeast edge of Fort Pond, and just prior to that, when Teddy Roosevelt's Rough Riders were housed in the Ditch Plains area and the American military maintained an artillery training area east of Fort Pond, certain major disturbances to the Downs and its vegetation took place. During World War II and thereafter for twenty years, the U.S. Army, Navy and Air Force maintained facilities in several Montauk sites. These areas were cleared of vegetation and built upon, and pollutants were deposited willy-nilly.

Most of Hither Woods, the Walking Dunes, and ocean dunes and beaches at the east end of Napeague were purchased by the state for the first two of several Montauk state parks: Montauk State Park and Hither Hills State Park. (See Fig. 1.) With this purchase in 1924, Robert Moses began a Montauk buyback program which is still very much in progress. Almost all of the

other Montauk open space now in public hands was acquired after World War II, mostly after 1970. The federal government gave Camp Hero to the state and a small piece next to the Montauk Lighthouse to the town. In 1970 the newly created Town Planning Board received an application for a subdivision of 1,400 lots on 1000 acres of privately held grasslands in Indian Field adjacent to Oyster Pond. Such a proposal prompted some Montauk residents to form the Concerned Citizens of Montauk (CCOM) who successfully fought against said proposal. CCOM lobbied Suffolk County to buy 1,157 acres of Indian Field, and in 1972 this became Suffolk County's first Montauk park. Since then CCOM, The Group for the South Fork (now the Group for the East End), The Nature Conservancy and the

Peconic Land Trust have worked with the federal, state, county and town governments to acquire another 5,000 or so acres for public use. Lately, money accumulated in the town's Community Preservation Fund established by referendum in 1998 and funded by a special tax on real estate sales, has been used to purchase much of Montauk's open space. The very "Point" and the lighthouse, federally owned since 1804, were given to the Montauk Historical Society early in the new millennium. A

large chunk of the Downs, that between Fort Pond and Lake Montauk south of North Neck (=Culloden) was fashioned into the Montauk Downs State Park Golf Course under the management of the New York State Parks System which also includes Camp Hero and Hither Hills State Parks.

At the present time about two-thirds of Montauk have been put into permanent public open space, owned by New York State, Suffolk County, the Town of East Hampton, Peconic Land Trust or The Nature Conservancy. In a few cases, large parcels of open space such as northeastern Hither Woods, Shadmoor, and Amsterdam Beach are collectively owned by state, county and town. In the last 50 years, Montauk has also undergone a considerable amount of residential and business development: first Macy's Leisurama on the northwest side of Lake Montauk, then motels and hotels along the bay and ocean coasts on the north and south, then major subdivision developments in south Hither Hills, Ditch Plains, and along the sides of Fort Pond and Lake Montauk. By 2000 there were 4,815 residential units in Montauk; by 2010 there were 3,326



Figure 2. Eastward view from Squaw Hill, east of Big Reed Pond.
[All photos by Victoria Bustamante.]

year-round residents (about 15% of East Hampton Town's year-round resident population).

Unique Grasslands

Nevertheless, much of the natural habitat as Taylor saw it has persisted. As he so masterfully argued, the grasslands east of Hither Hills, excluding the Point Woods and some other small wooded areas, pre-dated the settlers and comprised extensive coastal prairie, as it were, now classified as "Maritime Grasslands" (Edinger et al. 2002). If Taylor was correct, the 5,000 or so acres of what he referred to as the "Downs" were the second largest prairie on Long Island, the first being the Hempstead Plains the extent of which over the years has been reduced to about 17 acres.

Before Taylor, the Montauk Downs had been so named by earlier settlers and geographers since they resembled the downs or "moorlands" of Great Britain, even though they had very few species in common. Thus, Taylor made the case for the grassland species having very old roots. While he didn't compare the Downs' flora with that of the Hempstead Plains, the two grasslands share many species, including the federally- and state-endangered sandplain gerardia (*Agalinis acuta*), the state-threatened bushy frostweed (*Helianthemum dumosum*), bird's-foot violet (*Viola pedata*) and many more. Interestingly, of those three, today the last is missing from Montauk.

Geology and Hydrology

Taylor was well aware of the very fine work, *The Geology of Long Island*, authored by Fuller and published in 1914 by the U.S. Geological Service. He frequently alluded to the glacial origin of Montauk, the makeup of the different soils associated with woodlands, heathlands and dunelands, and particularly the kettle holes which were so many, so diverse, and unique in their floras. What he didn't know was that much of the land under those kettle holes and under the Downs in general contained clayey soils and aquicludes of clay that were nearly impenetrable to percolating precipitation, thus providing vernal and seasonal wetlands of many different kinds today called "perched" wetlands, some of which were long-standing and others of which were ephemeral and only wet for a very short part of the year. At the time of Taylor's study the true water table in many wetland situations lay well below the bottom of the wetland, except for in the largest ponds---Fort Pond, Great Pond, Oyster Pond,



Figure 3. *Symphyotrichum puniceum*, Purple-stemmed Aster.

Big Reed Pond and Fresh Pond. Thus much water from precipitation ran off via ditches (thus the name Ditch Plains), swales and ocean bluff seeps.

With respect to ponds, streams and other wetlands habitats, much has remained the same over the years with the exception of Great Pond, once the largest freshwater pond on Long Island, which was permanently opened to Block Island Sound in 1927 by Carl Fisher; and Fort Pond, now the second largest freshwater pond on Long Island which used to be regularly seapoosed¹ to Fort Pond Bay by the Montaukets and fishermen until 1904 when the Long Island Railroad pushed through to the middle of Montauk, after which it was permanently landlocked. Before that time alewives regularly entered the pond to spawn.

Observations on Recent Changes to the Montauk Flora

Taylor must have surveyed the many small ponds on the Downs behind the ocean bluffs that held unique floras including *Alisma* (water plantain), *Arethusa* (dragon's-mouth), and *Woodwardia* (chain fern species), but these are no longer extant. They have been claimed by erosion which has cut the bluffs back 50 to 75 feet, as the erosion rate has increased from about a foot a year when the lighthouse was built to about three to five feet a year since the latter part of the last century.

Taylor did not concern himself with the algae and many of the aquatic macrophytes and so several freshwater plants such as *Potamogeton* pondweeds didn't make it on to his list. And interestingly, he didn't study the Walking Dunes flora, nor the flora immediately to the east where, for example, the state rarity, crested fringed orchis (*Platanthera cristata*) grows.

While Taylor only found one *Pinus* species, the pitch pine (*P. rigida*), noting one poor specimen in the sands at the northeast edge of Lake Montauk at Gin Beach, today there is a thriving stand of pitch pines just east of the Walking Dunes, and outliers have invaded the main body of Hither Woods from that vantage point.

¹Seapoose is an anglicized spelling of the Shinnecock Indian word "little river." When a cut is made in the barrier beach separating a bay from the ocean, the cut quickly becomes a little river. Bay water runs out at low tide and the ocean runs in at high tide. This cut can occur naturally during storms or can be created by man.

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The Point Woods west of the lighthouse and south of Montauk State Parkway is largely the same as when Taylor described it except that the trees are now larger. Since then, it has become host to a few new species such as the southern red oak (*Quercus falcata*) (Greller et al. 2013), black birch (*Betula lenta*), and bitternut hickory (*Carya cordiformis*). These probably became established later, as might have the other two trees missing from Taylor's list for Hither Woods, hop hornbeam (*Ostrya virginiana*), yellow birch (*Betula alleghaniensis*), and a third, very-hard-to-overlook species, Hercules' club (*Aralia spinosa*), which is becoming established in many different Montauk habitats. [Ed. Note: This last may also include *Aralia elata*, the introduced Japanese angelica tree, and not *A. spinosa*. See *Rhodora* 111: 145-154 (2009)].

One of the most interesting trees in Montauk only one of which was one found by Taylor is American basswood (*Tilia americana*). Taylor found a single specimen on the small island in the northeast corner of Fort Pond, then known to the locals as Brushy Island, now, as Turtle Island. This tree has long perished as the island is now under two feet of water and only the protruding dead trunks of tupelo (*Nyssa sylvatica*), red maple (*Acer rubrum*) and shrubs mark its location. One of the authors, Victoria, has since located two basswoods, one in Montauk County Park near Squaw Hill north of the highway, and one in the Camp Hero woods east of Point Woods and south of the highway.

Taylor listed only a few non-natives as he was not about to identify and situate all of the weedy species, of which Montauk has a great number. One common Montauk weed he did find was phragmites, listed as *Phragmites phragmites* L., i.e. described by Linnaeus himself. Taylor was born in Britain and may have been familiar with the Eurasian phragmites species, now named *Phragmites australis*, so we are left with the question, did he in fact find the native American phragmites, recently described as *Phragmites americanus*, or was it the Old World species. He found this specimen on Star Island, "an island in Great Pond," which then was fresh and not tidal. Today the Eurasian phragmites is probably the most common of all invasive species in Montauk, and on the South Fork for that matter.

Taylor also listed hops (*Humulus lupulus*), now considered as introduced, which he found with the American basswood on Brushy Island. However, the subspecies in Big Reed could be the native one as per Haines' *Flora Novae Angliae* (2011) and is yet determined. It is our opinion that Taylor would have listed some of Montauk's most recent invasives if they were present at the time of his study. He listed a stand of alien tree-of-heaven (*Ailanthus altissima*) that still exists. He listed the introduced barnyardgrass (*Echinochloa crus-galli*) next to the native coast cocksbur grass (*E. walteri*). Today, Montauk

is plagued by mugwort (*Artemisia vulgaris*), mile-a-minute weed (*Persicaria perfoliata*), Japanese knotweed (*Fallopia japonica*), Morrow's honeysuckle (*Lonicera morrowii*), garlic mustard (*Alliaria petiolata*) and many more, even including a few kudzu (*Pueraria montana* var. *lobata*) vines. Taylor also probably never saw other exotics such as black swallowwort (*Cynanchum louiseae*), spiny amaranth (*Amaranthus spinosus*), horned poppy (*Glaucium flavum*), broad-leaved helleborine (*Epipactis helleborine*), and slender trefoil (*Lotus tenuis*). These are all comparative newcomers. But Asiatic bittersweet (*Celastrus orbiculatus*), multiflora rose (*Rosa multiflora*) and Japanese honeysuckle (*Lonicera japonica*) have been on Long Island for more than a hundred years. Is it possible that they were not yet in Montauk during Taylor's time?

Taylor used the abbreviations VR, RR, R, VC, RC, and C next to each species on his compendium list to denote very rare, rather rare, rare, very common, rather common and common. A species that was RR for Taylor was perfoliate-leaved horse gentian (*Triosteum perfoliatum*) (Fig. 4) which he said grew "in an upland kettle between the Inn and Culloden Point" and on Star Island. At that time it was known only from Orient and a hundred miles to the west. One of us (Victoria) found a few of this species at three sites in the Big Reed Pond-Montauk County Park area. If Taylor were alive today he might have given the species a VR instead of a RR. On the other hand, some plants denoted as rare or very rare by Taylor have become more numerous. Examples are climbing hempweed (*Mikania scandens*), thoroughwort (*Eupatorium torreyanum* = *E. hyssopifolium* var. *laciniatum*), American holly (*Ilex opaca*), tall thoroughwort (*Ageratina altissima*), sweet goldenrod (*Solidago odora*), white wood-aster (*Eurybia divaricata*) and hedge-bindweed (*Calystegia sepium*). [This last plant could be the non-native, *C. sepium* subsp. *sepium*.] In other words these plants should no longer be considered very rare or rather rare. Yet, *E. hyssopifolium* var. *laciniatum* is listed as "Endangered" by Mitchell and Tucker (1997).



Figure 4. *Triosteum perfoliatum*, Perfoliate-leaved Horse Gentian.



Figure 5. *Swida alternifolia*, Alternate-leaved Dogwood.

On the other hand, some species that Taylor listed as common, no longer are: to wit, sandplain gerardia (*Agalinis acuta*), water-plantain (*Alisma subcordatum*), wild sarsaparilla (*Aralia nudicaulis*), pearly everlasting (*Anaphalis margaritacea*), gray birch (*Betula populifolia*), Virginia chainfern (*Woodwardia virginica*), seabeach sandwort (*Honkenya peploides* ssp. *robusta*), cranberry (*Vaccinium macrocarpon*), bartonia (*Bartonia virginica*), mermaid-weed (*Proserpinaca pectinata*), meadow-beauty (*Rhexia virginica*), golden-pert (*Gratiola aurea*), rose milkwort (*Polygala sanguinea*), and Canadian burnet (*Sanguisorba canadensis*). It should be noted that of the above-named species, sandplain gerardia is federally- and state-endangered, and mermaid-weed is state-threatened.

Some species in one of Taylor's rare categories are still rare. Examples are staghorn sumac (*Rhus hirta*), New England blazing-star (*Liatis scariosa* var. *novae-angliae*) [state-threatened], purple-stemmed aster (*Symphyotrichum puniceum*) (Fig. 3), Indian tobacco (*Lobelia inflata*), hops (*Humulus lupulus*), pagoda dogwood (*Swida alternifolia* = *Cornus alternifolia*) (Fig. 5), white-buttons (*Eriocaulon aquaticum*), sweet gale (*Myrica gale*), water-shield (*Brasenia schreberi*), cut-leaf grape-fern (*Botrychium dissectum*), wood-betony (*Pedicularis canadensis*), common monkeyflower (*Mimulus ringens*), white turtlehead (*Chelone glabra*) (Fig. 6b), great water dock (*Rumex britannica* = *R. orbiculatus*), and northern horsebalm (*Collinsonia canadensis*).

Then there are the plants in Taylor's monograph that we have yet to relocate. These are: rose coreopsis (*Coreopsis rosea*) [state-rare], swamp goldenrod (*Solidago uliginosa*), Virginia threeseed mercury (*Acalypha virginica*) [of which the variety *virginica* is state-endangered], lopseed (*Phryma leptostachya*), wild columbine (*Aquilegia canadensis*), thimbleweed (*Anemone virginiana*), choke-cherry (*Prunus virginiana*), heart-leaf willow (*Salix eriocephala*), dwarf prairie willow (*Salix occidentalis* = *Salix humilis* var. *tristis*), white vervain (*Verbena urticifolia* var.), showy gold-



Figure 6a. (top) *Lilium philadelphicum*, Wood Lily and Figure 6b. (bottom) *Chelone glabra*, White Turtlehead.

enrod (*Solidago speciosa*), blue wood aster (*Symphyotrichum cordifolium* = *Aster cordifolius*), showy aster (*Eurybia* (= *Aster*) *spectabilis*), wild pink (*Silene caroliniana* [var. *penyslvania*]), coontail (*Ceratophyllum demersum*), water milfoil (*Myriophyllum humile*), mermaid-weed (*Proserpinaca pectinata*), mountain-mint (*Pycnanthemum incanum*), common bladderwort (*Utricularia vulgaris* ssp. *macrorhiza*), and water starwort (*Callitriche heterophylla*).

Finally, there are newly discovered plants not on Taylor's list, either because he overlooked them or, more probably, because they were not in Montauk at that time. Some of these are as follows: violet wood sorrel (*Oxalis violacea*) (Fig. 7) in the Oyster Pond watershed, Scotch lovage (*Ligusticum scoticum*) on the backshore of Culloden Point [these two are state-threatened and state-endangered, respectively], bush honeysuckle (*Diervilla lonicera*) at the Lighthouse, hairy pine sap (*Hypopitys lanuginosa* = *Monotropa hypopithys*) at Amsterdam Beach preserve, hairy pink bean (*Srophostyles umbellata*) found at multiple locations, whorled mountain mint (*Pycnanthemum verticillatum* var. ?) at Shadmoor Park [if variety *verticillatum*, then state-endangered],

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whorled water-pennywort (*Hydrocotyle verticillata*) [state-endangered] found at Big Reed Pond, one-flowered cancer-root (*Orobanche uniflora*) at Gin Beach, northern water plantain (*Alisma triviale*), in Big Reed, blunt-lobed woodsia (*Woodsia obtusa*) and silvery glade fern (*Deparia acrostichoides*) in Big Reed Woods, mad-dog skullcap (*Scutellaria lateriflora*) at Oyster Pond, Big Reed Pond and "North Neck" Suffolk County preserve, wild yam (*Dioscorea villosa*) at Big Reed Pond, golden saxifrage (*Chrysosplenium americanum*), in a shallow ponding Point Woods, downy agrimony (*Agrimonia pubescens*) found in Big Reed Pond, perfoliate bellwort (*Uvularia perfoliata*) in the Oyster Pond watershed woods and elsewhere, Virginia wild rye (*Elymus virginicus*) on Culloden Point bluff faces, spreading sedge (*Carex laxiculmis*) in Big Reed Pond, seorse sedge (*Carex seorsa*) [state-threatened] in several disparate freshwater wetlands, prickly bog sedge (*Carex atlantica* ssp.) in several freshwater wetlands, and Emmons' sedge (*Carex albicans* var. *emmonsii*) [state-threatened] in southeast Hither Woods wetlands and elsewhere.

While Taylor noted the presence of bunch broomsedge (*Andropogon glomeratus*), a wetland edge species, he apparently did not find *A. virginicus* (broomsedge) and that is most certainly attributable to the absence of this species on eastern Long Island at that time. It has since become very common in East Hampton Town including Montauk. Its plumose seeds are dispersed in



Figure 7. *Oxalis violacea*, Violet Wood Sorrel.

various ways, by wind, highway mowers and the like; it is the belief of the authors that the prevailing summer and early fall southwesterlies and westerlies that Taylor talked about are partly responsible for not only broomsedge reaching Montauk, but also for several other species getting there. Some seeds are more dispersible than others. The Asteraceae have highly dispersible seeds and Taylor listed a great number of aster family species. Pine seeds, on the other hand, are either digested by squirrels and birds or fall to the ground close to their source. This may explain why it has taken so long for the pitch pines to reach Montauk as they are fairly recent arrivals.

Discussion

In addition to being a botanist and plant taxonomist Taylor was, in many respects, one of the first plant ecologists. He used various indices and co-

efficients to compare the Montauk flora with floras elsewhere, using techniques which were fairly new to plant science at that time. He also spent considerable time and effort relating the Montauk flora to Montauk's prevailing weather conditions, temperature, humidity, wind strength and direction, cloud cover, and other meteorological parameters.

Until about 3000 years ago, Montauk was an island separated from mainland East Hampton. Sands washing westerly from the north and south sides of Montauk gradually filled in the gap and created the Napeague isthmus-- a classic "filter bridge" in terms of biogeographic dispersal mechanisms.

The 600-plus species of higher plants now documented for Montauk are largely due to the influx of invasive plants, of which Taylor mentioned only a few. It is expected that the invasive-to-native species ratio will continue to move in favor of the invasives in future years as Montauk is a bustling area with lots of coming and going, particularly tourists and second homers, as well as the Long Island Railroad and its passengers, buses and various boats from yonder points. Ornamentals are popular and the garden industry is thriving. Montauk's fauna, particularly its large white-tailed deer population and increasing wild turkey population, is also affecting the condition of Montauk's flora. Invasive and native poisonous plant species will probably increase in number at the expense of the more edible ones.



Figure 8. *Viburnum dilatatum*, Linden Arrowwood.

Postscript

Norman Taylor left few clues as to how long he took to complete his study, how many times he rode the LIRR to Montauk, how long it took to collect, identify and press plants. The present authors still have a great deal of field work ahead of them which they hope will lead to a publication as worthy to the field of botany as Mr. Taylor's ground-breaking work. There is yet a great deal of time to be spent locating and identifying, in particular, members of the Poaceae, Cyperaceae, Juncaceae, Potamogetonaceae, and Orchidaceae. The *Carex* species are sure to be the death of us!

For a modern update and account of Montauk's environment, geography and history, Joan Porco's book, *Holding Back The Tide* published in 2005, is a must read.

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Norman Taylor

Stephen Sinon

Head, Information Services and Archives

The LuEsther T. Mertz Library

The New York Botanical Garden



Norman Taylor was born in Hereford, England in 1883 and emigrated with his parents, two brothers and a sister and settled in Yonkers, New York in 1889. He became an American citizen in 1896. In his youth he was plagued by poor eyesight which forced him first to leave grammar school, then once again high school. In a later interview, he credited a careful and meticulous biologist at Yonkers High School with having instilled in him an interest in plants. Following two years at Cornell University as a special student in Agriculture and Horticulture, he began working as a plant maintainer in the Forestry Department of the New York Zoological Park. During this period he met Nathaniel Lord Britton (1859-1934), Director of the nearby New York Botanical Garden, who hired him as a Museum Assistant and became his botany tutor. Taylor first accompanied Britton as a collector on his field trip to the Inagua islands in the Bahamas in 1904 and worked with Head Gardener, George Valentine Nash (1864-1921) as a collector in the Dominican Republic and Haiti. Later expeditions in which Taylor participated were to Cuba, Haiti and Turk's Island. Taylor advanced to the title of Assistant Curator before leaving The New York Botanical Garden.

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(Norman Taylor cont. from page 45)

In 1911 Taylor was appointed Curator of Plants at the Brooklyn Botanic Garden which was established a year earlier. He assisted in planning the grounds and undertook an in-depth study of the flora of Long Island during which he traversed some 2,000 miles around Long Island, mapping locations of plant families. He was particularly interested in recording the location of notable trees. The archives of The New York Botanical Garden, which contain Taylor's papers, hold his photographs and notes on Gardiner's Island, the grasslands of Hempstead, and Fox Island Beach.

During his career at the Brooklyn Botanic Garden, Taylor consulted with urban planner Robert Moses (1888-1981) on the planning of state parks on Long Island, and was influential in the creation of Montauk Point State Park. He was also called on to serve as an expert witness in the litigation involving the lands that would become Hither Hills State Park. In 1917, Taylor was appointed editor of the *Journal of the International Garden Club* for a two-year period which provided the opportunity to travel throughout the country lecturing.

In 1928 Taylor was approached by the Chicle Development Company to search for chicle, chicle substitutes and gutta-percha in Brazil. He contacted *Fortune* magazine asking them to publish an article he had written on chewing gum and the editors wrote back suggesting he write an article on cinchona instead. This article, published in 1934, led to his appointment in 1936 as Director of the Cinchona Products Institute, New York, a non-profit research institute affiliated with the Dutch quinine industry. One of the most important products derived from cinchona is the alkaloid quinine which is used to treat malaria. Taylor served as a liaison between the cinchona industry and the American medical community, becoming an active spokesperson for the prevention and treatment of malaria. He made numerous business trips to Central and South America until his retirement in 1951.

Norman Taylor's popular writing career began in 1920 when he wrote a series of articles on the appreciation of nature under the name "The Naturalist" for the *New York Evening Post*. After Taylor had made some attempts to publish work on non-botanical topics, Nathaniel Lord Britton recommended him as Editor of Botany, Ornamental Horticulture and Forestry for *Webster's New International*

Dictionary (2nd ed.) (1926-1934). At various points in his career, Taylor also served as editor for the journals *Torreya* and *Ecology*.

Taylor left the Brooklyn Botanic Garden in 1929 and published the first edition of *The Garden Dictionary* in 1936, a work that would make Taylor a household name. The *Dictionary* went through five editions in his lifetime and a sixth edition appeared posthumously. The first edition was awarded the Gold Medal of the Massachusetts Horticultural Society. In the 1950s Taylor contracted with Van Nostrand publishing and produced a series of seven books on garden topics. Houghton-Mifflin, continues to issue this popular series of horticulture standards under the name *Taylor's Guides*. With the growing interest in organic gardening techniques today, it is interesting to note that Taylor was one of the first professionals to encourage organic gardening. His contacts in the medical world and his prodigious plant knowledge and travel experience led him to pen one of the earliest works on psychotropic drug plants entitled *Flight from Reality* (1949) and the later text *Plant Drugs that Changed the World* (1965). His dissatisfaction with the management of the Merriam-Webster Co. led to a switch to the *American Heritage Dictionary*, which saw his work published in 1965.

Despite having never finished high school or college, Taylor was awarded an honorary Ph.D. from Washington College, Chestertown, Maryland in 1958. The New York Botanical Garden gave him its Distinguished Service Award in 1961. The American Horticultural Society honored him with its Liberty Hyde Bailey Medal in 1963. He was a fellow of The New York Academy of Sciences, The New York Academy of Medicine and The American Association for the Advancement of Science. He was a member of the Ecological Society of America and the Torrey Botanical Club. He was socially active in the The Explorer's Club, The Players Club, The Century Association and the Cosmos Club.

After his numerous expeditions on behalf of NYBG, and the Cinchona Products Institute, Taylor led a quiet retirement travelling the world with his second wife, Margaretta Stephenson, during one third of the year, and dividing the rest of the year between their homes on West 10th St. and their beloved estate, Elmwood in St. Anne, Maryland, which they planted with many rare trees and shrubs. He died at Elmwood in November 1967.

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UPCOMING PROGRAMS

(cont'd from back cover)

December 10, 2013* Tuesday, 7:30 PM

Members Night: Members are welcome to bring photos, stories, specimens, and tales of peculiar sightings of favorite plants. A great opportunity to show what you have found while exploring on Long Island or elsewhere. Please call Rich Kelly (516-354-6506) in advance to advise as to the approximate number of images/slides that you would like to show and preferred medium of presentation. Thanks.

Location: Bill Paterson Nature Center, Muttontown Preserve, East Norwich

Reminder - no meetings in January or February.
Next meeting March 11, 2014.

* Refreshments and informal talk begin at 7:30 p.m.

Formal meeting starts at 8:00 p.m.

Directions to Muttontown or Stony Brook: 516-354-6506

2013 FIELD TRIPS

OCTOBER 5, 2013 (SATURDAY) 9:30 AM

Brentwood to Southampton, Suffolk County, NY

Trip leader: John Turner, Email: redknot@optonline.net

Atlantic white cedar trees grow slowly and may live for more than 1000 years. In New York they are a threatened species with approximately two dozen populations. We'll make four to five stops to look at representative cedar groves, heading as far east as Southampton. The trip will run until approximately 4-4:30. Bring water, lunch, and insect repellent.

Directions: We will meet at the northeast corner of the Wicks Road Park and Ride of the LI Expressway at 9:30 a.m. The address of the Park and Ride is 500 Wicks Rd. Brentwood, NY 11717-1132.

UPCOMING PROGRAMS

October 8, 2013* Tuesday, 7:30 PM
Stephen Schott: "Nonindigenous Macroal-

gae Species (NIMS) in Long Island Waters."
The potential costs and impacts of introduced marine macroalgae, or seaweeds, are largely overlooked in the invasive species realm. This talk will cover the ecology, impacts, and potential management of the 12 nonindigenous seaweeds that have either been confirmed in LI waters, or pose an imminent threat of introduction. Steve has a B.S. in Botany and an M.S. in Biology, both from the University of Rhode Island, with a focus on marine plants and ecology. He has been working for Cornell Cooperative Extension's Marine Program for over 13 years in habitat monitoring and restoration.

Location: Earth and Space Science Building,
Gil Hanson Room (Room 123),
Stony Brook University, Stony Brook

November 12, 2013* Tuesday, 7:30 PM
Daniel Atha: "The Flora of Ice Pond."

This talk will briefly introduce The New York Botanical Garden (NYBG) and the work it does to document and conserve the World's plant diversity. In what will be the first published flora of any area in Putnam County, New York, it will briefly introduce the diversity of habitats found at Ice Pond and how this diversity supports a remarkable number of species. Within an area of less than one square mile (about 640 acres), Daniel has documented over 540 species of flowering plants, including three endangered, two threatened and four rare state-listed species. One hundred seventy-nine species are new records for Putnam County, including one new record for New York State. Daniel Atha is a research associate at NYBG. He has conducted botanical field work in all 50 states of the US as well as such far-flung places as Vietnam, Bolivia, Mexico, Belize, and several states of the former Soviet Union. His work is focused on floristics, taxonomy, and applied botany.

Location: Bill Paterson Nature Center, Muttontown
Preserve, East Norwich

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